

their lower purchase prices and financing costs (line 5). They will also avoid the increased risks of being injured in crashes that would have resulted from manufacturers' efforts to reduce the weight of new models to comply with the baseline standards, which represents another benefit from reducing stringency vis-à-vis the baseline (line 6).

At the same time, new cars and light trucks will offer lower fuel economy with more lenient standards in place, and this imposes various costs on their buyers and users. Drivers will experience higher costs as a consequence of new vehicles' increased fuel consumption (line 7), and from the added inconvenience of more frequent refueling stops required by their reduced driving range (line 8). They will also forego some mobility benefits as they use newly-purchased cars and light trucks less in response to their higher fueling costs, although this loss will be almost fully offset by the fuel and other costs they save by driving less (line 9). On balance, consumers of new cars and light trucks produced during the model years subject to this proposed action will experience significant economic benefits (line 10).

By lowering prices for new cars and light trucks, this proposed action will cause some owners of used vehicles to retire them from service earlier than they would otherwise have done, and replace them with new models. In effect, it will transfer some driving that would have been done in used cars and light trucks under the baseline scenario to newer and safer models, thus reducing costs for injuries (both fatal and less severe) and property damages sustained in motor vehicle crashes. This improvement in safety results from the fact that cars and light trucks have become progressively more protective in crashes over time (and also slightly less prone to certain types of crashes, such as rollovers). Thus, shifting some travel from older to newer models reduces injuries and damages sustained by drivers and passengers because they are traveling in inherently safer vehicles and not because it changes the risk profiles of drivers themselves. This reduction in injury risks and other damage costs produces benefits to owners and drivers of older cars and light trucks. This also results in benefits in terms of improved fuel economy and significant reductions of emissions from newer vehicles (line 11).

Table II-27 through Table II-28 also show that the changes in fuel consumption and vehicle use resulting from this proposed action will in turn generate both benefits and costs to the

remainder of the U.S. economy. These impacts are "external," in the sense that they are by-products of decisions by private firms and individuals that alter vehicle use and fuel consumption but are experienced broadly throughout the U.S. economy rather than by the firms and individuals who indirectly cause them. Increased refining and consumption of petroleum-based fuel will increase emissions of carbon dioxide and other greenhouse gases that theoretically contribute to climate change, and some of the resulting (albeit uncertain) increase in economic damages from future changes in the global climate will be borne throughout the U.S. economy (line 13). Similarly, added fuel production and use will increase emissions of more localized air pollutants (or their chemical precursors), and the resulting increase in the U.S. population's exposure to harmful levels of these pollutants will lead to somewhat higher costs from its adverse effects on health (line 14). On the other hand, it is expected that the proposed standards, by reducing new vehicle prices relative to the baseline, will accelerate fleet turnover to cleaner, safer, more efficient vehicles (as compared to used vehicles that might otherwise continue to be driven or purchased).

As discussed in PRIA Section 9.8, increased consumption and imports of crude petroleum for refining higher volumes of gasoline and diesel will also impose some external costs throughout the U.S. economy, in the form of potential losses in production and costs for businesses and households to adjust rapidly to sudden changes in energy prices (line 15 of the table), although these costs should be tempered by increasing U.S. oil production.<sup>214</sup> Reductions in driving by buyers of new cars and light trucks in response to their higher operating costs will also reduce the external costs associated with their contributions to traffic delays and noise levels in urban areas, and these

additional benefits will be experienced throughout much of the U.S. economy (line 17). Finally, some of the higher fuel costs to buyers of new cars and light trucks will consist of increased fuel taxes; this increase in revenue will enable Federal and State government agencies to provide higher levels of road capacity or maintenance, producing benefits for all road and transit users (line 18).

On balance, Table II-27 through Table II-28 show that the U.S. economy as a whole will experience large net economic benefits from the proposed action (line 22). While the proposal to establish less stringent CAFE and GHG emission standards will produce net external economic costs, as the increase in environmental and energy security externalities outweighs external benefits from reduced driving and higher fuel tax revenue (line 19), the table also shows that combined benefits to vehicle manufacturers, buyers, and users of cars and light trucks, and the general public (line 20), including the value of the lives saved and injuries avoided, will greatly outweigh the combined economic costs they experience as a consequence of this proposed action (line 21).

The finding that this action to reduce the stringency of previously-established CAFE and GHG standards will create significant net economic benefits—when it was initially claimed that establishing those standards would also generate large economic benefits to vehicle buyers and others throughout the economy—is notable. This contrast with the earlier finding is explained by the availability of updated information on the costs and effectiveness of technologies that will remain available to improve fuel economy in model years 2021 and beyond, the fleet-wide consequences for vehicle use, fuel consumption, and safety from requiring higher fuel economy (that is, considering these consequences for used cars and light trucks as well as new ones), and new estimates of some external costs of fuel in petroleum use.

## 2. Macroeconomic Assumptions That Affect the Benefit Cost Analysis

Unlike previous CAFE and GHG rulemaking analyses, the economic context in which the alternatives are simulated is more explicit. While both this analysis and previous analyses contained fuel price projections from the Annual Energy Outlook, which has embedded assumptions about future macroeconomic conditions, this analysis requires explicit assumptions about future GDP growth, labor force participation, and interest rates in order to evaluate the alternatives.

<sup>214</sup> Note: This output was based upon the EIA Annual Energy Outlook from 2017. The 2018 Annual Energy Outlook projects the U.S. will be a net exporter by around 2029, with net exports peaking at around 0.5 mbbl circa 2040. See Annual Energy Outlook 2018, U.S. Energy Information Administration, at 53 (Feb. 6, 2018), <https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf>. Furthermore, pursuant to Executive Order 13783 (Promoting Energy Independence and Economy Growth), agencies are expected to review and revise or rescind policies that unduly burden the development of domestic energy resources beyond what is necessary to protect the public interest or otherwise comply with the law. Therefore, it is reasonable to anticipate further increases in domestic production of petroleum. The agencies may update the analysis and table to account for this revised information.